

WHAT IS CLAIMED IS:

1. An apparatus, comprising:

a first section which outputs first and second digital signals, said first digital signal representing a predetermined waveform with a first phase shift imparted thereto in relation to a reference, said second digital signal representing substantially said predetermined waveform with a second phase shift imparted thereto in relation to said reference, said second phase shift being different from said first phase shift;

a digital-to-analog converter section which converts said first and second digital signals respectively into first and second analog signals;

a phase shift section which produces a first adjusted signal by imparting to said first analog signal a phase shift which is substantially equal and opposite to said first phase shift, and which produces a second adjusted signal by imparting to said second analog signal a phase shift which is substantially equal and opposite to said second phase shift; and

a second section operable to facilitate combining of said first and second adjusted signals.

2. An apparatus according to Claim 1, wherein said second section includes a transmitter section which transmits first and second electromagnetic signals that respectively include said first and second adjusted signals.

3. An apparatus according to Claim 2, wherein said transmitter section includes first and second antenna elements which are physically spaced from each other,
5 said first and second electromagnetic signals being respectively transmitted through said first and second antenna elements.

4. An apparatus according to Claim 1, including a filter section which effects bandpass filtering of said first analog signal before said first analog signal is supplied to said phase shift section, and which effects bandpass filtering of said second analog signal before said second analog signal is supplied to said phase shift section.
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5. An apparatus according to Claim 1, wherein said first and second digital signals each have a plurality of successive states, each of said states being a selected one of first and second predetermined states which are different.
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6. An apparatus according to Claim 1,
wherein said first and second digital signals each
have a plurality of successive states;

5 wherein said digital-to-analog converter section
generates for each said state of said first digital
signal a respective corresponding pulse of said first
analog signal which has a duration less than the duration
of the corresponding state, said digital-to-analog
converter section outputting a predetermined voltage
10 between successive said pulses of said first analog
signal; and

15 wherein said digital-to-analog converter section
generates for each said state of said second digital
signal a respective corresponding pulse of said second
analog signal which has a duration less than the duration
of the corresponding state, said digital-to-analog
converter section outputting a predetermined voltage
between successive said pulses of said second analog
signal.

7. An apparatus, comprising:

a generator section which outputs a digital signal having a plurality of successive states;

5 a digital-to-analog converter section which converts said digital signal into an analog signal, said digital-to-analog converter section generating for each said state of said digital signal a respective corresponding analog pulse which has a duration less than the duration of the corresponding state, said digital-to-analog converter section outputting a predetermined voltage between successive said pulses.

10 15 8. An apparatus according to Claim 7, including a transmitter section which transmits an electromagnetic signal that includes said analog signal.

20 9. An apparatus according to Claim 8, including a band pass filter which processes said analog signal before transmission of said analog signal by said transmitter section.

25 10. An apparatus according to Claim 7, wherein said predetermined voltage is approximately zero volts.

11. An apparatus according to Claim 7, wherein each said pulse has a duration which is approximately half the duration of the corresponding state of said digital signal.

12. An apparatus according to Claim 7, wherein each said state of said digital signal is a selected one of first and second predetermined states which are different.

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13. An apparatus according to Claim 12, wherein said digital-to-analog converter generates a positive pulse having a predetermined magnitude when the corresponding state of said digital signal is said first predetermined state, and generates a negative pulse having said predetermined magnitude when the corresponding state of said digital signal is said second predetermined state; and wherein said predetermined voltage is approximately zero volts.

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15. An apparatus according to Claim 13, wherein each said pulse has a duration which is approximately half the duration of the corresponding state of said digital signal.

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16. An apparatus according to Claim 14, wherein each said pulse has approximately a square wave shape.

16. An apparatus, comprising:

a first section which outputs first and second analog signals, said first analog signal representing a predetermined waveform and said second analog signal representing substantially said predetermined waveform;

5 a first phase shift section which produces a first shifted signal by imparting to said first analog signal a first phase shift, and which produces a second shifted signal by imparting to said second analog signal a second phase shift different from said first phase shift;

10 an analog-to-digital converter section which converts said first and second shifted signals respectively into first and second digital signals;

15 a further phase shift section which produces a first adjusted signal by imparting to said first digital signal a phase shift which is substantially equal and opposite to said first phase shift, and which produces a second adjusted signal by imparting to said second digital signal a phase shift which is substantially equal and opposite to said second phase shift; and

20 a second section operable to facilitate combining of said first and second adjusted signals.

25 17. An apparatus according to Claim 16, wherein

said first section includes a receiver section which has two spaced antenna elements, and which receives substantially the same electromagnetic signal through each of said antenna elements, said first and second analog signals each being derived from a respective one of said antenna elements.

18. An apparatus according to Claim 16, including a filter section which effects bandpass filtering of said first shifted signal before said first shifted signal is supplied to said analog-to-digital converter section, and
5 which effects bandpass filtering of said second shifted signal before said second shifted signal is supplied to said analog-to-digital converter section.

10 19. An apparatus according to Claim 16, wherein said first and second digital signals each have a plurality of successive states, each of said states being a selected one of first and second predetermined states which are different.

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20. A method, comprising the steps of:

producing first and second digital signals, said first digital signal representing a predetermined waveform with a first phase shift imparted thereto in relation to a reference, said second digital signal representing substantially said predetermined waveform with a second phase shift imparted thereto in relation to said reference, said second phase shift being different from said first phase shift;

converting said first and second digital signals respectively into first and second analog signals;

imparting to said first analog signal a phase shift which is substantially equal and opposite to said first phase shift in order to obtain a first adjusted signal, and imparting to said second analog signal a phase shift which is substantially equal and opposite to said second phase shift in order to obtain a second adjusted signal; and

combining said first and second adjusted signals.

21. A method according to Claim 20, wherein said step of producing said first and second digital signals includes the step of configuring said first and second digital signals to each have a plurality of successive states, each of said states being a selected one of first and second predetermined states which are different.

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22. A method according to Claim 20,
wherein said step of producing said first and second
digital signals includes the step of configuring said
5 first and second digital signals to each have a plurality
of successive states;

10 wherein said converting step includes generating for
each said state of said first digital signal a respective
corresponding pulse of said first analog signal which has
a duration less than the duration of the corresponding
state, and outputting a predetermined voltage between
successive said pulses of said first analog signal; and

15 wherein said converting step includes generating for
each said state of said second digital signal a
respective corresponding pulse of said second analog
signal which has a duration less than the duration of the
corresponding state, an outputting a predetermined
voltage between successive said pulses of said second
analog signal.

23. A method, comprising the steps of:

generating a digital signal having a plurality of successive states; and

5 converting said digital signal into an analog signal, including generating for each said state of said digital signal a respective corresponding analog pulse which has a duration less than the duration of the corresponding state, and outputting a predetermined voltage between successive said pulses.

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15 24. A method according to Claim 23, wherein said step of generating pulses is carried out so that each said pulse has a duration which is approximately half the duration of the corresponding state of said digital signal.

20 25. A method according to Claim 23, wherein said step of generating said digital signal is carried out so that each said state of said digital signal is a selected one of first and second predetermined states which are different.

25 26. A method according to Claim 25, wherein said step of generating pulses includes the steps of generating a positive pulse having a predetermined magnitude when the corresponding state of said digital signal is said first predetermined state, and generating a negative pulse having said predetermined magnitude when the corresponding state of said digital signal is said second predetermined state.

27. A method, comprising the steps of:
producing first and second analog signals, said
first analog signal representing a predetermined waveform
5 and said second analog signal representing substantially
said predetermined waveform;

10 imparting to said first analog signal a first phase
shift to obtain a first shifted signal, and imparting to
said second analog signal a second phase shift different
from said first phase shift to obtain a second shifted
signal;

15 converting said first and second shifted signals
respectively into first and second digital signals;

imparting to said first digital signal a phase shift
which is substantially equal and opposite to said first
phase shift in order to obtain a first adjusted signal,
and imparting to said second digital signal a phase shift
which is substantially equal and opposite to said second
phase shift in order to obtain a second adjusted signal;
20 and

combining said first and second adjusted signals.

25 28. A method according to Claim 27, wherein said
converting steps are carried out in a manner so that said
first and second digital signals each have a plurality of
successive states, each of said states being a selected
one of first and second predetermined states which are
different.

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